

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 924 516 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
16.05.2001 Bulletin 2001/20

(51) Int Cl.7: **G01N 27/90**

(43) Date of publication A2:
23.06.1999 Bulletin 1999/25

(21) Application number: **98310391.2**

(22) Date of filing: **17.12.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **22.12.1997 US 996127**

(71) Applicant: **UNITED TECHNOLOGIES**
CORPORATION
Hartford, CT 06101 (US)

(72) Inventors:
• **Raulerson, David A.**
Palm Beach Gardens, Florida 33410 (US)
• **Amos, Jay**
Hobe Sound, Florida 33455 (US)
• **Smlth, Kevin D.**
Jupiter, Florida 33478 (US)

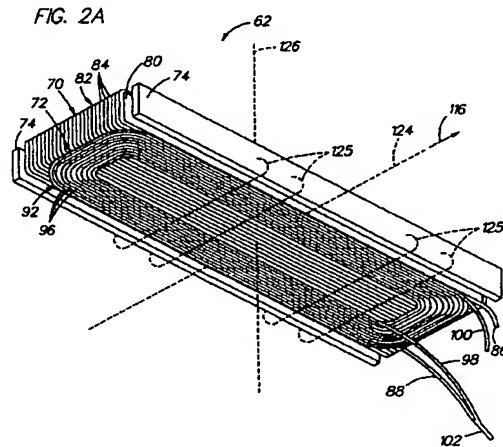
(74) Representative: **Leckey, David Herbert**
Frank B. Dehn & Co.,
European Patent Attorneys,
179 Queen Victoria Street
London EC4V 4EL (GB)

(54) Method and apparatus for non destructive inspection

(57) An eddy current probe (62) for use in inspecting an object, includes a driver (70) having a coil (82) with an effective coil axis (124), and further includes a receiver (72) having a coil (92) with a coil axis (126) oriented substantially perpendicular to the driver coil effective coil axis, the receiver having a length (134), and a width (130), the length being the dimension in the direction parallel to the scanning path (116), and the width having a dimension magnitude substantially greater than that of the length. A method for inspecting an object uses such an eddy current probe.

An eddy current probe for use in inspecting an object, includes a driver (70) having a coil (82) with an effective coil axis (124), the driver having a length (132) and a width (128), the length being the dimension in a direction substantially parallel to a scanning path (116), and further includes a receiver (72) having a coil (92) with a coil axis (126) oriented substantially perpendicular to the driver coil effective coil axis, where the magnitude of a distance between the receiver and at least one of the driver edges (140,144) is less than 0.125 times the width of the driver. A method for inspecting an object uses such an eddy current probe.

FIG. 2A



EP 0 924 516 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 31 0391

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 518 635 A (MILLSTRONG LTD) 16 December 1992 (1992-12-16) * page 2, line 14 - page 3, line 10; page 3, line 45 - page 4, line 10; page 6, line 21 - page 7, line 7; page 9, line 50 - page 11, line 39; page 12, line 38 - page 14, line 56; page 16, line 51 - page 17, line 57; figures 2-6, 14, 17-21, 24-26, 28a-28c, 33, 40 *	1-16	601N27/90
X	US 3 875 502 A (NEUMAIER P) 1 April 1975 (1975-04-01) * column 3, line 3 - column 6, line 11; figures 1-6 *	1-6, 8-12, 14-16	
X	US 4 016 487 A (NEUMAIER P) 5 April 1977 (1977-04-05) * column 2, line 34 - column 4, line 42; figures 1-9 *	1-6, 8-11, 14-16	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			601N
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 23 March 2001	Examiner Johnson, K
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04031)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 31 0391

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-03-2001

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0518635	A	16-12-1992	GB 2262607 A	23-06-1993
			GB 2256713 A,B	16-12-1992
			NO 922298 A	14-12-1992
			US 5864229 A	26-01-1999
			GB 2292223 A,B	14-02-1996
US 3875502	A	01-04-1975	DE 2326391 A	12-12-1974
US 4016487	A	05-04-1977	DE 2509927 A	16-09-1976
			CA 1051519 A	27-03-1979
			JP 1244489 C	14-12-1984
			JP 51113687 A	06-10-1976
			JP 59020978 B	16-05-1984
			SE 412468 B	03-03-1980
			SE 7601874 A	08-09-1976
			SU 695585 A	30-10-1979

EPO FORM P0148

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82